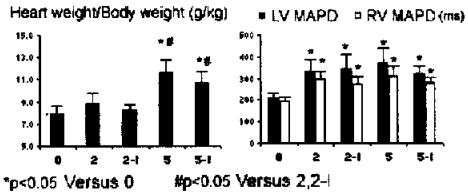
was determined by relating heart weight to body weight at sacrifice. Dogs in sinus rhythm (0) (n=5), 2 (n= 8) and 5 (n=7) weeks AV-block were compared to dogs receiving I (30 mg/kg BID), administered one week prior to AV-block for 2 (2-I) (n=5) or 5 weeks (5-I) (n=5).

Results: A non-uniform significant increase in MAPD is present at 2 and 5 (see figure), at That time Torsade de Pointes-arrhythmias Are evocable. Heart weight of 0 and 2 Is Not different but significantly increased at 5. Irbesartan has no effect.

Conclusions: While electrical remodeling and susceptibility to drug-induced Torsade de Pointes Are complete at 2 weeks AV-block: cardiac hypertrophy has but fully developed at 5 weeks. AT1 blockade does Not lead to prevention of structural or electrical remodeling in this model.



1136-114 **Investigations on the Changes of Gene Expression Patterns in Atrial Fibrillation Tissue Using DNA Microarray Techniques**

Ling-Ping Lai, Jiunn-Lee Lin, Shih-Shen Lin, Ming-Jai Su, Shoei-K Stephen Huang, *National Taiwan University Hospital, Taipei, Taiwan,ROC, Pig Research Institute Taiwan, Chunan, Taiwan,ROC.*

Background DNA microarray techniques can be used to study the changes of gene expression in a large scale. We used this technique to investigate the changes of gene expression patterns in a porcine model of atrial fibrillation.

Methods and Results Atrial fibrillation was induced by rapid right atrial pacing at 600/min for 4 weeks in 6 adult pigs weighing 50-60 kg. After turning off the pacemaker, the pigs were observed for 2 weeks to confirm the persistence of atrial fibrillation. Another 6 pigs with pacemaker turned off were used as the control pigs. Total cellular RNA was isolated from the left and right atria respectively. Cy5 and Cy3 were used for labeling and the DNA microarray used in the present study contains 6033 genes. We found that the gene expression patterns of the 6 atrial fibrillation pigs were distinct from those of the control pigs in hierarchical analysis. We further found 118 genes with significant expression changes in the left atrium and 79 genes in the right atrium. These included genes for distinct functions such as transcription factors, protein kinase and genes involved in proliferation and apoptosis pathways. We also found that the right atrium and left atrium were different in their gene expression pattern in both control and atrial fibrillation groups.

Conclusions Large scale profiling of gene expression changes in atrial fibrillation was reported. We found distinct expression patterns in atrial fibrillation and also reported the genes with significant changes in the left and right atria respectively.

1136-115 **Acute Effects of Dronedarone on the Potassium Currents in Human Atrial Cells**

Wei Sun, Fuhua Chen, Fardard Esmailian, Jonnalagedda S. Sarma, Glenn T. Wetzel, Thomas S. Klitzner, Bramah N. Singh, *VA Greater LA Healthcare System, Los Angeles, California, UCLA School of Medicine, Los Angeles, California.*

Background: Dronedarone (DR), a non-iodinated benzofuran derivative structurally related to amiodarone, is undergoing clinical trials in atrial fibrillation. Its acute effects on the potassium currents in isolated human atrial myocytes have not been reported.

Methods: The whole-cell patch-clamp techniques were applied in 16 atrial myocytes isolated from 3-5mm strips of right atrial tissue from 10 patients undergoing coronary bypass surgery. Only quiescent rod-shaped cells showing clear cross striation were used. Major repolarizing currents I_{Kur} (ultrarapid delayed rectifier), I_{to} (transient outward), I_K (delayed rectifier) and I_{K1} (inward rectifier) were measured before (control) and after 15 minute exposure to 10μM DR.

Results: Essential data are summarized in the Table.

Current	Test Potential	Control (pA/pF)	After DR (pA/pF)	p-Value (Paired t)
I_{Kur} (n=10)	+60mV	7.6±2.0	3.8±1.4	<0.001
I_K (n=9)	+60mV	5.2±2.6	3.2±1.3	<0.01
I_{to} (n=10)	+50mV	15.2±4.0	12.7±4.0	<0.02
I_{K1} (n=9)	-120mV	-3.7±2.3	-2.8±2.1	<0.001

Conclusion: These results from the present study demonstrate that DR acutely inhibits transmembrane potassium currents I_{Kur}, I_K, I_{to} and I_{K1} by 50, 39, 16, and 24% respectively, in human atrial myocytes. These data may provide direct information on the cellular mechanisms for the actions of DR on artial arrhythmias in humans.

1136-116 **Cellular Electrophysiology Differs in Swine and Human Ventricles**

Gui-Rong Li, Hung-Fat Tse, Chu-Pak Lau, *The University of Hong Kong, HK, Hong Kong.*

Background: Although the pig is a useful animal for the study of human heart diseases, and is being evaluated for xenotransplantation, little information is available in literature whether cellular electrophysiology is similar in pig heart to that in human. The present study was to compare the cellular electrophysiology in human and pig ventricular cells.

Methods: We used whole-cell patch configuration to record action potentials (APs) and membrane currents in epicardial cells isolated from pig and human ventricles, and compared the AP morphology and related currents responsible for the phase 1 repolarization of the AP.

Results: No significant difference was observed in resting membrane potential and action potential duration in the two types of cells. Amplitude of phase 1 of the APs was larger in pig (38.2 ± 2.5 mV, n = 9) than in human (25 ± 3.1 mV, n = 6) heart cells (P < 0.01). Duration of the phase 1 lasted longer in pig (21 ± 2.1 ms) than in human (6.9 ± 1.2 ms, P < 0.01) cardiac cells, suggesting differential ion current contributions. The Ca^{2+}-activated transient outward chloride current ($I_{Ca,Cl}$, or I_{to2}) with "bell-shaped" current-voltage (*I-V*) relation was revealed in pig epicardial cells by 300-ms steps between -40 and +60 mV from -50 mV, while no I_{to2} was observed in human cells. The 4-aminopyridine-(4-AP) sensitive K^+ current (I_{to1}) with linear *I-V* relation was recorded in human cells (n = 7), but it was not detected in cells from pig heart under identical conditions (n = 9). The "spike and dome" of the APs was abolished by 3 mM 4-AP in human heart cells (n = 6), but not in pig heart cells. Interestingly, the "spike and dome" in pig cardiac cells was abolished by reducing $[Cl^-]_o$ in pig cardiac cells, and was not affected in human cardiac cells.

Conclusion: There is no I_{to1} in pig, and no I_{to2} in human heart cells. The 4-AP-sensitive I_{to1} contributes to phase 1 repolarization of human ventricular APs, whereas I_{to2} is responsible for the fast repolarization of pig cardiac action potential, indicating that cellular electrophysiology is different in pig and human ventricles.

POSTER SESSION

1137 Ablation of Supraventricular Arrhythmias: New Methods and Approaches

Monday, March 18, 2002, 3:00 p.m.-5:00 p.m.
Georgia World Congress Center, Hall G
Presentation Hour: 4:00 p.m.-5:00 p.m.

1137-103 **Segmental Isolation of Pulmonary Veins During Atrial Fibrillation**

Hakan Oral, Bradley P. Knight, Hiroshi Tada, Mehmet Ozaydin, Radmira Greenstein, Aman Chugh, Christoph Scharf, Sohail Hassan, Frank Pelosi, Jr., S. Adam Strickberger, Fred Morady, *University of Michigan, Ann Arbor.*

Background: Segmental isolation of pulmonary veins (PV) usually is performed during sinus rhythm or pacing from the coronary sinus by delivering radiofrequency energy (RF) at the earliest sites of activation within the PV ostia. However, in some patients, sinus rhythm cannot be maintained due to recurrences of atrial fibrillation (AF) during the procedure.

Objective: To determine the feasibility and clinical outcome of segmental PV isolation during AF.

Methods: In 45 men and 13 women (mean age ± SD = 53 ± 12 years) with paroxysmal AF (duration = 6.9 ± 6.7 years; 15 ± 12 episodes per month), 185 PV's were targeted for isolation by identification of PV potentials recorded with a decapolar Lasso catheter during sinus rhythm or pacing from the coronary sinus. If there were recurrences of AF despite antiarrhythmic therapy with ibutilide and/or amiodarone, RF energy was delivered during AF at Lasso sites that showed rapid PV activity with exit block to the adjacent left atrium. RF energy was delivered at the earliest activation sites within 5 mm of the ostium at a maximum temperature of 52°C and a power of 35W for 45 secs. Complete isolation was defined as the elimination of high frequency PV potentials.

Results: Of the 185 PV's, 15 PV's (8%) were isolated during AF. AF terminated during RF delivery in 4 of these 15 PV's (27%). After restoration of sinus rhythm with cardioversion, there were no recurrences of AF. The remaining PV fascicles were ablated after restoration of sinus rhythm. Duration of RF energy application was similar when PV's were isolated during AF, 20±10 min, or during sinus rhythm, 21±8 min (p=0.8). After 120 ± 80 days of follow-up, AF recurred in 4 of 12 patients (33%) who had PV isolation in AF, and in 13 of 40 patients (30%) who had delivery of RF in sinus rhythm (p=0.8).

Conclusions: Recurrent AF may complicate PV isolation procedures. RF delivered at ostial sites with a rapid PV activity and exit block to the left atrium is effective in terminating or eliminating recurrences of AF. Application of RF during AF is not associated with additional RF applications and is useful in patients with recurrent AF during the isolation procedure.

1137-104 **Epicardial Foci of Atrial Arrhythmia Apparently Originating in the Left Pulmonary Veins**

Demosthenes Katritsis, Eleftherios Glazitzoglou, Socrates Korovesis, George Paxinos, John Ioannidis, Constantine E. Anagnostopoulos, John Camm, *Athens Euroclinic, Athens, Greece, St. George's Hospital Medical School, London, United Kingdom.*

Background: Connections between left atrium, pulmonary veins (PV) and coronary sinus (CS) can be identified epicardially, through the CS or following a pericardiocentesis, by recording specific potentials that may be related to paroxysmal atrial fibrillation (PAF). The prevalence of such epicardial, atrial fibrillation (AF)-inducing foci is unknown.

Methods: Forty patients (pts), aged 48±12 years, subjected to catheter ablation for paroxysmal AF, were studied by means of epicardial mapping through the distal, superoposterior CS. Arrhythmogenic foci were identified by recording specific potentials during sinus rhythm or proximal CS pacing and/or by demonstrating consistent triggering of atrial ectopics or tachyarrhythmia.

Results: In 19 pts at least one consistent arrhythmia focus was endocardially mapped to originate in the left superior (LSPV) or inferior PV (LIPV). Catheterization of distal CS in